Abstract

▪ Background

Noninvasive positive-pressure ventilation (*NPPV*) appears to be of benefit in the treatment of patients with acute cardiogenic pulmonary edema and may reduce mortality.

▪ Aim of the work

We conducted a study to determine whether *NPPV* is of immediate benefit, in adults with acute cardiogenic pulmonary edema and whether there are important differences in outcome associated with this method of treatment regarding hospital mortality, rate of endotracheal intubation and intensive care unit (*ICU*) length of stay.

▪ Methods

In a randomised controlled trial, thirty patients with acute cardiogenic pulmonary edema (*ACPE*) were enrolled in the study and divided into two groups. Group I: included 15 patients who were assigned to *NPPV* through oronasal mask with (inspiratory pressure, 8 to 20 cm of water; expiratory pressure, 4 to 10 cm of water). Group II: included 15 patients who were assigned to standard oxygen therapy through oxygen mask. Both groups were compared regarding the following parameter: arterial blood gases, vital signs & degree of dyspnea on admission, 1-hours and 2-hour post intervention and after discontinuation of treatment. Both groups are compared regarding the rate of endotracheal intubation, *ICU* length of stay and hospital mortality.

▪ Results

A total of 30 patients, 16 (53.3%) female and 14 (46.7%) male with mean age is 68.9 ± 5.5 years were included in our study. As compared with standard oxygen therapy, noninvasive ventilation was associated with early greater mean improvements regarding to dyspnea score (7.1 ± 1.1 vs. 7.8 ± 0.9, P-value 0.003), respiratory rate (27 ± 3 vs. 33 ± 2, P-value 0.001), heart rate (100 ± 9 vs. 112 ± 6, P-value 0.001), oxygen saturation (94 ± 3 vs. 90 ± 4, P-value 0.005) and partial pressure of arterial oxygen (83.8 ± 12.1 vs. 75.4 ± 9.5, P-value 0.044).

There was significant difference in mean *ICU* length of stay (6.6 ± 1.6 vs. 8.2 ± 1.3, P-value 0.006) but no significant difference in mortality rate or endotracheal intubation rate between patients receiving noninvasive positive pressure ventilation and those receiving standard oxygen therapy.

▪ Conclusions

Patients with acute cardiogenic pulmonary edema, noninvasive ventilation safely provides earlier improvement of dyspnea, respiratory distress and oxygen saturation, and decrease *ICU* length of stay than does standard oxygen therapy. However, these effects do not result in improved endotracheal intubation or survival rate.

We recommend that noninvasive positive pressure ventilation be considered as adjunctive therapy in patients with acute cardiogenic pulmonary edema who have severe respiratory distress or whose condition does not improve with pharmacologic therapy.

Key word:
Acute
Pulmonary
cardiogenic